

Newburgh Teacher Center
In-service Course Proposal
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Title:	Thinking Mathematics for Middle School: Journey to Algebra		
Curriculum Area:	Mathematics - Secondary		
Learning Standards:	All		
Presenter(s):	Lou Stanley & Mary Gordon	Email:	lstanley@newburgh.k12.ny.us
Dates:	4:15 – 7:15 PM		
Time:	10/29, 11/5, 11/12, 11/19, 12/3, 12/10, 12/17, 1/7, 1/21, 1/28		
Location:	SJH		
Credit(s):	2 credits		
Hours:	30 hours		
Target Audience:	Middle School Math Teachers – Grades 7 – 8 Elementary Teachers - Grades 4 - 6		
Course Description:	Thinking Mathematics suggests engaging students in guided discovery as part of a process carefully structured by the teacher. Within this approach, students are given a great deal of flexibility and freedom to use solution strategies that make sense to them and to learn how other students think about problems. The Ten Principles of Thinking Mathematics forms the instructional foundation of this approach.		
Course Requirements:	<ol style="list-style-type: none"> 1. Attend all sessions. 2. Active participation. 3. Activity Implementation and Reflection 4. Share lessons with class. 5. Class presentation of a Lesson/Activity of a topic taught in class. 		
Maximum Enrollment:	25		

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Credit and permission granted by Jay McTighe – UbD

Name of In-service Proposal: Thinking Mathematics for Middle School: Journey to Algebra

Name of Instructor(s): Lou Stanley & Mary Gordon

Desired Results

Goal(s): To provide usable knowledge about how elementary and middle school mathematics is learned and how it can be taught more effectively.

Understanding(s):

Ten Principles of Thinking Mathematics
Patterns and Relationships
Number and Number Sense
Additive Structure
Multiplicative Structures
Algebra

Essential Question(s):

How does a teacher build from intuitive knowledge?
What strategies can a teacher use to establish a strong number sense through counting, estimation, use of benchmarks, mental computation skills, and understanding operations?
How can situational story problems assist in instruction?
What skills are needed to use manipulatives and other representations to model the problem situation: then link concrete and symbolic representations?
Why should a teacher require students to explain and justify their mathematical thinking?
Why should a teacher accept and encourage multiple correct solution strategies?
What approaches can a teacher implement to balance conceptual and procedural learning?
What tactics should a teacher use to guide instruction with ongoing assessment?
How procedures can a teacher use to adjust the curriculum timeline?

Knowledge/Skills:

Research and Activities:
Patterns and Relationships
Number and Number Sense
Additive Structure
Multiplicative Structures
Algebra

Assessment Evidence

Direct Evidence:

Formal and informal observations.
Small and Large group discussions
Lesson/Presentation activity in class.

Learning Plan

Learning Activities:

Presentation of Research
Activity Implementation and Reflection.
Discussion – small and large group
Numerous activities that incorporate the research